good workability for attaching the clip to the substrate is realized. Furthermore, the lead-out electrode is prevented from being damaged. Additionally, the clip is prevented from being deformed when the clip is fitted onto the substrate.

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-7 are pending in the application. Claims 1-3 have been amended and Claims 4-7 have been added by the present amendment. Applicants respectfully submit that no new matter has been added by this amendment.

In the outstanding Office Action, the drawings were objected to; the abstract was objected to; the specification was objected to; and Claims 1, 2, and 3 were rejected under 35 U.S.C. § 103(a) as unpatentable over Tonar et al.

Regarding the objection of the drawings, Figures 1-5 have been amended in light of the comments noted in the outstanding Office Action. Formal Drawings are being submitted herewith. Thus, it is respectfully requested this rejection be withdrawn.

Regarding the Abstract, the Abstract has been amended in light of the comments noted in the outstanding Office Action and as shown in the marked-up copy. Accordingly, it is respectfully requested that this objection be withdrawn.

Regarding the specification, the specification has been amended in light of the comments noted in the outstanding Office Action and as shown in the marked-up copy. Accordingly, it is respectfully requested that this objection be withdrawn.

Claims 1, 2, and 3 were rejected under 35 U.S.C. § 103(a) as unpatentable over Tonar et al. This rejection is respectfully traversed.

Claim 1 is directed to a clip for an EC mirror, including a metal clip formed by providing both side pieces on both side edges of an electrically conductive strip-like metallic plate in such a way as to face each other and to be integral with each other. Further, one of both the side pieces, which is disposed at a side of a conductive surface, is formed in a planar shape in such a manner as to be able to be in planar and in intimate contact with the conductive surface. The other of the side pieces, which is disposed at a back side of a substrate, includes a terminal portion shaped in such a way as to be outwardly opened, and a central portion formed in a protruding shape in such a manner as to be bent toward an inside of the clip and as to narrow at an inner opening thereof, to thereby impart elastic properties thereto.

As shown in non-limiting examples in Figures 1-3, a clip 20 is formed with side pieces 21 or 22 disposed along both side edges of a strip-like connection plate 23. The side pieces 21 are formed to have a planar portion 21a and a flap portion 21b extended therefrom. Thus, the planar shape allows an increased degree of adhesion between the side piece and the lead-out electrode portion 11. An end portion 22a of the other side piece 22 is disposed at the side of the glass surface and formed in a curved shape to be outwardly open. The curved shape and outwardly round-opened portion 22a allows the clip to easily be inserted onto the substrate (specification page 10, lines 21-25). Thus, damage to the lead-out electrode 11 is minimized and when the clip is attached to the substrate, the clip is hard to deform (specification, page 10, line 25, to page 11, line 3).

Additionally, the central portion of the side piece 22 is formed in a convex shape 22b so that a clip opening is narrowed, and the central portion provides a sandwiching force to be exerted on the substrate to prevent the clip from slipping off the substrate. For example, the measured fitting force of the clip of the present invention was 98.3 gf compared to the fitting force of a conventional clip of 87.5 gf (specification, page 11, lines 13-19). Furthermore, a

high-temperature/high-humidity test was performed on the clip of the present invention. Typically, the sealing resin 18 expands under high temperature and humidity and pushes up the terminal of a clip, as shown in Fig. 5, thereby causing poor contact between a conductive surface and the clip. However, in the present invention, the expansion of a sealing resin 18 caused no poor contact between the lead-out electrode portion and the clip (specification, page 11, lines 20-23).

The outstanding Office Action indicates that Tonar et al discloses a clip formed by providing both side pieces 214, 218 on both side edges of an electrically conducted strip-like metal plate 212. One side piece 214, which is disposed at a side of a conductive surface, is formed in a shape to be able to be in intimate contact with the conductive surface of metallic plate 212 and the other side piece 218, which is disposed at a back side of a substrate, has a terminal portion 225 shaped to be outwardly opened and also has a central portion 218b formed in a protruding shape. Further, the Office Action recognizes Tonar et al does not implicitly disclose a *planar shape* of side piece 214, but indicates since both planar side piece and curve shape piece function as a clip device to contact with a conductive surface, the selection of the planar side piece in place of the curve side piece is based upon the "environment of use to ensure optimum performance." The Office Action also states it would have been obvious at the time the invention was made to a person having skill in the art to replace the curved side piece in the EC device with the planar side piece "as a matter of design choice."

However, Tonar et al discloses a clip, for example in Fig. 3b, having first resilient sections 214 and second resilient sections 218 that curve up such that the clip forms a "C" and pressure points that oppose each other are formed to exert a force that will aid in the electrical connection and keep the clip from falling off, which are spaced a distance. Further,

Tonar et al also discloses that dimples may be located on the resilient sections 214 and concentrate the contact force to provide superior electrical contact.

Thus, in Tonar et al there is no motivation to solve the problems with which the inventors of the present invention were concerned, such as, improving intimate contact between the clip and the conductive surface, improving fitting force contact area between the lead-out electrode portion and the clip electrode, and increasing workability of attaching the clips to the substrate (specification, page 4, lines 21-25). The claimed invention achieves such benefits, at least in part, by having the required *planar* side piece. The Office Action therefore cannot simply dismiss this difference as a "design choice" without a teaching and motivation in the prior art.

Regarding Claim 2, the Office Action further indicates Tonar et al does not implicitly disclose a sealing resin layer and a planar side piece, but states the use of general material for an EC mirror layer such as resin/epoxy sealing are well known in the art of optical mirrors for the purpose of sealing as well as preventing mirrors from breakage. The Office Action indicates that it would have been obvious to one skilled in the art to make the EC mirror of Tonar et al from general materials such as resin/epoxy sealing layer for the purpose of sealing as well as preventing the mirror from breakage.

Claim 2 has been amended to include "the clip is contacted with or in proximity to the sealing layer." Tonar et al does not teach using any electrically insulating epoxy resin in proximity to clip 210. For example, as shown in Figure 2 of Tonar et al, the one or more layers of a transparent electrically conductive material 116 are deposited on the second surface 112b to act as an electrode, and the transparent conductive material 116 may be any material which bonds well to front element 112 and maintains this bond when the epoxy seal 118 bond thereto (column 5, lines 20-25). Further, the coating 120 of the third surface 114a is sealably bonded to the coating 116 on the second surface 112b near the outer perimeters by

a sealing member 118. Thus, a clip 210 coupled to transparent electrically conductive material 116 and front element 112, and a clip 210 coupled to third surface 120 and a fourth surface reflector 121 do not contact any electrically insulating epoxy resins 18. Thus, there is no teaching or motivation in Tonar et al to use sealing resin in proximity to the clip.

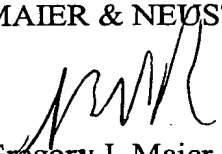
Therefore, it is respectfully submitted that independent Claims 1 and 2 and each of the claims depending therefrom are allowable.

The present response also sets forth in new Claims 4-7 the invention in a varying scope, and Applicants submit the new claims are supported by the originally filed specification. In particular, new Claim 4 is directed to the EC mirror and Claims 5-7 are directed to the electrode structure of Figure 2. Accordingly, it is respectfully submitted new Claims 4-7 are also allowable.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



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Marked-Up Copy
Serial No: 09/926,657
Amendment Filed on: October 16, 2002

IN THE SPECIFICATION

Page 1, please replace line 1 with the following text:

TITLE OF THE INVENTION [DESCRIPTION]

Page 2, please replace the paragraph at lines 5 to 16 with the following text:

This EC mirror is provided with a lower transparent electrode (that is, a conductive layer) 3 serving as a first electrode, as illustrated in FIG. 4. ITO (indium tin oxide) film, SnO_2 and so on are used as the materials of the electrode 3. For instance, a first EC layer 4 colored by a reduction reaction, an electrolytic layer 5, a second EC layer 6 colored by an oxidation reaction, and an upper-electrode and reflection film 7 (the materials of which are thin films made of metal, such as aluminum) are formed in sequence on this transparent electrode. [Asealingmaterial8] A sealing material 8, which usually includes resins, such as an epoxy resin, and a sealing plate (or glass plate) 9 are superimposed thereon. Thus, an EC element is constructed.

Page 9, please replace the paragraph at line 6 to line 16 with the following text:

Further, a large number of expanding slots 24 are formed at arbitrary intervals in both the opposed side pieces 21 and 22, as illustrated in FIG. 1. Such expanding slots 24 are formed so that the clip is easily bent in the longitudinal direction. Each of the expanding slots 24 may [24] have a section of a given shape, such as a V-shape, and a U-shape. Reference numeral 25 designates a terminal provided by being cut up, for example, at an upper portion of the side piece provided at the side of the upper electrode film in such a way

as to protrude therefrom. The terminal 25 is adapted so that a harness can be soldered thereto or connected thereto by a means, for instance, by being wound therearound.

Page 10, please replace the paragraph at line 3 to 13 with the following text.

A predetermined DC voltage is applied between the upper electrode and the lower electrode through the harness. The EC mirror is adapted so that when the polarity of the voltage is changed, an oxidation-reduction reaction is [ ] electrochemically caused in the first and second EC layers, and that the colorization or decolorization of the first EC layer and the second EC layer is performed. This EC mirror performs the functions of a glare-proof mirror by utilizing change in reflectivity, which is caused by change in absorption coefficient for light passing therethrough due to an occurrence of the phenomenon of the colorization or decolorization.

IN THE CLAIMS

Please amend Claims 1-3 as shown below:

--1. (Amended) A clip for an EC mirror, including a metallic clip [(20)] formed by providing both side pieces [(21, 22)] on both side edges of an electrically conductive strip-like metallic plate [(23)] in such a way as to face each other and to be integral with each other thereby to constitute one channel-type section as a whole, said clip, [characterized in that] whrein:

one [(21)] of both said side pieces, which is configured to be disposed at a side of a conductive surface, is formed in a planar shape in such a manner as to be able to be in planar and in intimate contact with the conductive surface; and

the other [(22)] of both said side pieces, which is configured to be disposed at a back side of a substrate, [has] includes a terminal portion [(22a) thereof] shaped in such a way as to be outwardly opened, and [also has]

a central portion [(22b) thereof] is formed in a protruding shape in such a manner as to be bent toward an inside of said clip and as to narrow at an inner opening thereof, to thereby impart an elastic property thereto.

2. (Amended) An electrode structure [of] for an EC mirror having an electrode portion in which a transparent electrically conductive film [(13)] serving as a first electrode, an EC film to be formed on said transparent electrically conductive film, and a second electrode and reflecting film [(17)] to be formed on said EC film are sequentially formed on a transparent substrate [(11) with curvature], and in which a sealing resin layer [(18)] and a protective layer [(19)] are provided thereon, and in which metallic clips [(2)] are attached to lead-out electrodes for said first electrode and said second electrode, [said electrode structure, characterized in that] wherein:

said clip [(20)] is formed by providing either of a first side piece [(21)] or a second side piece [(22)] on both side edges of a strip-like connection plate [(23)], which is made of [a] an electrically conductive metallic material, in such a way as to face each other and to be integral with each other thereby to constitute substantially a channel-type section as a whole;

the clip is contacted with or in close proximity to the sealing layer;

one [(21) of both said opposed side pieces (21, 22)] of said first and second side pieces, which is disposed at a side of a conductive surface, of said clip is formed in a planar shape; and

the other [(22) of both] of said first and second side pieces, which is disposed at a side of a substrate, [has] includes a terminal portion [(22a)] thereof shaped in such a way as to be outwardly opened, and [also has] a central portion [(22b) thereof] formed in a convex shape in such a manner as to narrow an inner opening thereof.

3. (Amended) [An] The electrode structure for an EC mirror according to claim 2, wherein an expanding slot [(24)] is formed in each of said side pieces [(21, 22)] of said clip

in a direction perpendicular to a longitudinal direction thereof, and wherein a terminal for an external wire connection is formed on one of both said side pieces.

4-7. (New)--

IN THE ABSTRACT

Please amend the Abstract at page 16 as follows:

--ABSTRACT

An electrically conductive metallic clip used for lead-out electrodes of an EC mirror has all-shaped section. One of an opposed side pieces of the clip[, which] is disposed at the side of an electrically conductive film[,] and is formed in a planar shape. The other side piece disposed at the side of a glass substrate is configured in a curved shape and has a terminal that is outwardly round-opened. [The] A central portion of [this] the other side piece is formed in a convex shape so that an opening thereof is narrowed. [With this configuration, when] When a sealing resin expands, an occurrence of poor contact between a lead-out electrode portion and the clip is prevented. Moreover, good workability for attaching the clip to the substrate is realized. Furthermore, the lead-out electrode is prevented from being damaged. Additionally, the clip is prevented from being deformed when the clip is fitted onto the substrate.--